

REMARKS

A. Background

Claims 1 and 2 were pending in the application at the time of the Office Action. Claims 1 and 2 were rejected as being obvious over cited art. By this response applicant has amended claim 1. As such, claims 1 and 2 are presented for the Examiner's consideration in light of the following remarks.

B. Proposed Amendments

By this response, Applicant has amended claim 1 to remedy an informality and to clarify that in the equation: $Z = A (W^2 - W_0^2) - Z_0$, the coefficient A is greater than zero. Support for this amendment may be found at least at page 16, lines 18-19 of the specification. In view of the foregoing, Applicant respectfully submits that the amendments to the claims do not introduce new matter and entry thereof is respectfully requested.

C. Rejection on the Merits

Paragraphs 1 and 2 of the Office Action reject claims 1 and 2 under 35 USC § 103(a) as being unpatentable over Japanese patent JP7333447 ("the '447 patent") in view of the Applicant's admitted prior art ("the APA") (Figure 9B of the application). Applicant respectfully traverses this rejection.

Applicant respectfully asserts that a *prima facie* case of obviousness has not been established regarding rejected claims 1 and 2 because a proper motivation to combine the teachings of the '447 patent with the alleged APA has not been sufficiently demonstrated, because a reasonable expectation of success has not been shown, and because all of the claim limitations have not been shown to be taught by the allegedly obvious combination. Absent such motivation, expectation or teaching, a

rejection based on the combination of references is unsupported and any rejection based on such a combination must be withdrawn.

As a preliminary matter, Applicant notes that the Office Action has relied on a Japanese language reference (the '447 patent) in the rejection of claims 1 and 2. The '447 patent was submitted (in Japanese) by the Applicant in an IDS received by the USPTO on September 5, 2006 with an English translation only of the title and abstract. Applicant notes that the Office Action has failed to provide a full-text English translation of the underlying document. As stated in MPEP § 706.02(II), however, "Citation of and reliance upon an abstract without citation of and reliance upon the underlying scientific document is generally inappropriate where both the abstract and the underlying document are prior art. ... If the document is in a language other than English and the examiner seeks to rely on that document, a translation must be obtained so that the record is clear as to the precise facts the examiner is relying upon in support of the rejection."

The MPEP carves out an exception to this, stating that in limited circumstances the examiner may make a rejection in an Office Action based on the English language abstract only without relying on the rest of the reference. However, when doing so, "the evidence relied upon is the facts contained in the abstract, not additional facts that may be contained in the underlying full text document." MPEP § 706.02(II). In the present case, it does not appear that the Office Action is relying on the '447 abstract because in the rejection the Examiner recites a "parabola waveguide," which is not even mentioned in the '447 abstract. The Office Action further cites to figures within the '447 patent as supporting the rejection, figures which are not a part of the '447 abstract. Thus, because the rejection is citing to and relying on more than the abstract in a non-English language reference, the rejection is improper pursuant to MPEP § 706.02(II).

Not only has the Office Action relied on a non-English reference in an improper manner, but the rejection advanced by the Office Action is problematic for other reasons as well. For example, Applicant notes that the Office Action has failed to state precisely what the Examiner believes to constitute the purportedly obvious combination of the '447 patent and the APA. In the rejection, the Office Action simply recites that:

'447 discloses a[n] arrayed waveguide grating using input and output slab waveguides having a "parabola" waveguide (Examiner notes that Applicant's "parabola" waveguide in figure 5C is the same as '447) and output characteristics as shown in figures 5-6 of '447 that meet the characteristics as claimed. The ratio of amplitude between a main and first peak appear to match the ratio in applicant's Figure 2. Furthermore, the relative phase between the two peaks of '447 in figure 5 appear to match those of applicant.

The Office Action also reprints Figures 2, 5, and 6 (with original Japanese wording) in support of the rejection.

From the foregoing it is clear that the Office Action has failed to identify which portion(s) of the APA the Examiner intends to be combined with the '447 patent, nor why one of skill in the art would have been motivated to do so. Applicant submits that simply stating that various aspects of the '447 patent are allegedly similar to the claimed invention is vague and unclear at best.

Notwithstanding the above deficiencies in the rejection, Applicant submits that rejected claims 1 and 2 nonetheless are distinguished over the '447 patent.

First of all, contrary to the exertion of the Office Action, the '447 patent does not disclose or suggest a "parabola waveguide," as recited in rejected claim 1. The waveguide shown in Figure 2 of the '447 patent, and that the Examiner has included in the Office Action, is in fact a "taper waveguide" and not a "parabola waveguide." In general, a waveguide whose width varies linearly (in a linear function) is known in the art as a "taper waveguide". This is clearly the type of waveguide shown in Figure 2 of the '447 patent. In contrast, a "parabola waveguide" is a waveguide whose

width varies parabolically (i.e., according to a quadratic equation). The '447 does not disclose or suggest a “parabola waveguide.” Furthermore, the Office Action has misidentified Figure 5C of the present application as corresponding to a “parabola waveguide” when in fact Figure 5C clearly corresponds to a “taper waveguide.” See page 9, lines 2-5 and paragraph [0032] on page 17.

Applicant further submits that it would not be obvious to modify the '447 device, however that might be done, to have a parabolic waveguide. In the present application, a dispersion characteristic is controlled by optimizing the shape of a parabola waveguide (6). In contrast, the '447 invention controls a dispersion characteristic by optimizing an opening width (D_i) of a linear taper core. See English translation of paragraphs [0014] to [0018] of the '447 patent, submitted herewith by Applicant. Applicant submits that because the '447 patent is controlling a dispersion characteristic in a substantially different way than the current application, there is no motivation to change the manner in which the '447 patent works by using parabola waveforms. Using a parabola waveguide would teach away from the main functionality of the '447 patent of using a taper waveguide to control dispersion.

Applicant further asserts that the vague comparisons in the Office Action between the “characteristics” allegedly taught by the '447 patent and the claimed invention are also inadequate. The Office Action points to Figures 5 and 6 of the '447 patent to allegedly show that the '447 patent has the same characteristics that are claimed. However, Figure 5 corresponds to an optical equalizer disclosed as a first embodiment (see English translation of paragraphs [0032] and [0048] of the '447 patent, submitted herewith by Applicant) and Figure 6 corresponds to an arrayed waveguide grating disclosed as a second embodiment (see English translation of paragraphs [0049] and [0054] of the '447 patent, submitted herewith by Applicant). The two embodiments are disclosed in the '447 patent as separate and distinct and have different design targets and design criteria. As such, the

Office Action has impermissibly attempted to combine multiple embodiments having separate and distinct design goals and functionality to try to come up with the currently claimed invention. Furthermore, except for the vague references to Figures 5 and 6, the Office Action fails to identify how the characteristics of the '447 patent equate to the limitations recited in claims 1 and 2.

In view of the foregoing discussion, Applicant respectfully submits that the Office Action has failed to establish a *prima facie* case of obviousness with respect to claims 1 and 2, at least because the Office Action has failed to establish the existence of a suggestion or motivation to make the purportedly obvious combination, because the Office Action has failed to establish that all of the claim elements would be found in the purportedly obvious combination, and because the Office Action has failed to establish that there is a reasonable expectation that the purportedly obvious combination would be successful. Applicant thus respectfully submits that the rejection of claims 1 and 2 should be withdrawn.

No other objections or rejections were set forth in the Office Action.

D. Conclusion

Applicant notes that this response does not discuss every reason why the claims of the present application are distinguished over the cited art. Most notably, applicant submits that many if not all of the dependent claims are independently distinguishable over the cited art. Applicant has merely submitted those arguments which it considers sufficient to clearly distinguish the claims over the cited art.

In view of the foregoing, applicant respectfully requests the Examiner's reconsideration and allowance of claims 1 and 2 as amended and presented herein.

In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Dated this 1st day of May 2007.

Respectfully submitted,

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